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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,480	07/07/2003	Masayuki Kusuda	15162/05590	6026

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SIDLEY AUSTIN BROWN & WOOD LLP  
717 NORTH HARWOOD  
SUITE 3400  
DALLAS, TX 75201

EXAMINER

ELLIS, SUEZU Y

ART UNIT PAPER NUMBER

2878

DATE MAILED: 04/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/614,480

Applicant(s)

KUSUDA, MASAYUKI

Examiner

Suezu Ellis

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-20 is/are allowed.
- 6) ☒ Claim(s) 1, 5 and 6 is/are rejected.
- 7) ☒ Claim(s) 7-12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on July 7, 2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Kusaka (US 6,201,617).

Regarding claim 1, Kusaka discloses a solid state image sensing device comprising a photoelectric signal generator that generates an electric signal that is logarithmically proportional to an intensity of incident light (col. 3, lines 17-20). Kusaka further discloses in Fig. 5 and 7, charge accumulation (functionally equivalent to

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integrating) occurs in the image sensing/transfer section (col. 4, lines 11-23), thus an integrating circuit is inherent to the device. Kusaka further discloses in Fig. 4, output signals from the solid state image sensing section (10), thus an output circuit is inherent to the device. Kusaka further discloses applying variable reference voltages to electrodes that accumulate charge (col. 3, lines 38-51).

Regarding claim 5, Kusaka discloses in Fig. 4, amplification circuits (20R, 20G, 20 B) for amplifying the output signals.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being obvious over Takada et al. (US 4,973,833) in view of Dyas et al. (US 2003/0197799). Hereafter, Takada et al. and Dyas et al. will be referred to as Takada and Dyas, respectively.

Regarding claim 1, Takada discloses a solid state image pickup device comprising a photoelectric converting circuit (photodiode) that generates a photoelectric signal that is logarithmically proportional to the intensity of the incident light (col. 7, lines 16-23; col. 11, lines 34-39) and a capacitor (functionally equivalent to an integrating circuit). Takada fails to expressly disclose an output circuit to output an electric signal

proportional to a value obtained by integrating the logarithm value of the incident light quantity based on an electric signal integrated by the integrating circuit (capacitor).

However an output circuit is an inherent feature since an output voltage, that is logarithmic to the amount of incident light, is obtained (Fig. 8e; col. 11, lines 27-39).

Takada further discloses a reference voltage applied to the capacitor (col. 18, lines 14-15), however, he fails to expressly disclose the reference voltage being variable.

Takada and Dyas are directed to a similar field of endeavor of image sensors. Dyas discloses the reference voltage signals for each of the sensor's color channels can be adjusted [0020]. It would have been obvious to a person of ordinary skill in the art to modify the reference voltage signal of Takada to be variable in order to maintain color constancy of the pixels.

Claim 6 is rejected under 35 U.S.C. 103(a) as being obvious over Kusaka (US 6,201,617) in view of the teachings of Nakamura et al. (US 6,836,291) or of Takada et al. (US 4,973,833). Hereinafter, Nakamura et al. and Takada et al. will be referred to as Nakamura and Takada, respectively.

Regarding claim 6, Kusaka discloses a photodiode, an MOS transistor that generates an analog signal which is logarithmically proportional to the photoelectric signal from the photodiode, and an image sensing/transfer section that performs charge accumulation (integration). Kusaka fails to expressly disclose the integration circuit comprising a capacitor. Kusaka and Nakamura and Takada are directed to a similar field of endeavor of image sensing devices. Nakamura and Takada teaches it is well

known in the art to include a capacitor to perform integration. It would have been an obvious design choice to substitute the image sensing/transfer section of Kusaka for a capacitor since they both store charge.

***Allowable Subject Matter***

Claims 2-4 and 7-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 13-20 are allowed.

Regarding claim 13, prior art fails to teach or reasonably suggest a solid image device comprising pixels where each have a reference voltage whose electric potential is variable is applied to one end of the capacitor, wherein the electric potential of the reference voltage is changed in synchronization with at least one of the operation of the second switch at the time of the image pickup operation and detecting the dispersion of sensitivity of the pixels, in addition to the other limitations of the claim.


Claims 14-20 are allowable due to their dependency.

***Telephone/Fax Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suez Ellis whose telephone number is 571-272-2868. The examiner can normally be reached on 8:30am-7pm (Monday-Thursday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DAVID PORTA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800